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By

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It is necessary to qualify any direction of remarks relative to the subject of "Low Cost Housing." What is "Low Cost Housing?" Is it lesser in cost than "High Cost Housing?" Should we not then term it "Lesser Cost Housing?"

The intention is not to be facetious. Site requirements for "Lesser Cost Housing" are, in many cases, identical to those for "Higher Cost Housing." (Except for certain differences which will be pointed out later in this dissertation.) In any case, efforts aimed at the reduction of construction costs for site preparation are very similar, whatever the range of housing.

Our firm's experience with site work for housing has been centered primarily in California. In California, as in other parts of the world, the initial settlement of immigrants occurred in the valleys. The hills were somewhat less workable for settling, and were used primarily for grazing of stock. Towns and cities grew up at road intersections, or adjacent to harbors and rivers, where transportation was most readily available.

The valleys were (and are) the prime agricultural areas. It then followed that the settlement of the valleys devoured much of the best farm land. One of our continuing problems in housing today is the question of accomodation of the increasing population without wanton destruction of the farmlands; and accomodation in the places where the people want to live.

There is an answer-but it's a dirty word. The word is "Density." One hesitates to use it in Planning Circles today, but it must be used at every meeting. The word was acceptable when it meant "undense." Nowadays, it means "more dense", and has gone down in favor.

What does density mean? Isn't density another "relative" word, like "Low Cost Housing?" Anyway, how dense is dense?

To define density, a comparison is necessary. Think of one of the world's beautiful places, like Switzerland. This is an idyllic country that we travel to (from California, among other places) to take pictures. What about density in Switzerland? It's about the most dense place in the world. If the mountains and the lakes are disallowed (because it is not possible to live there) Switzerland is left with a concentration of one person per 8,500 square feet. That's about the size of an average California lot.

In California, on the other hand, we get a great hue and cry about density. In this lovely place, if we take away the mountains and the waterland areas (we'll assume that people can live in the deserts), the density of the remainder is one person per 110,000 square feet. Californians get thirteen lots each. When does density get too dense?

One must, of course, be rational about density. California can hold a lot more people. However, we cannot simply spread them across the landscape like butter on a piece of bread. We must control the density. Fortunately for us, the answer to the control of density is identical to the answer of the question relative to the reduction of the cost of housing construction.

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To see the answer, we must look at extremes. (The engineer always thinks in extremes first-then crawls his way back to reality.) Picture any of the world's large cities; your own home town, perhaps. Now imagine that all of the man-made structures in that City-all of the houses, the shops, the industrial plants, and the offices were consolidated into a single, large high-rise building. (A Superbuilding!) The Superbuilding is surrounded by farms, lakes, parks, and flowing streams. This is the ultimate in the ecologists' dream. It would be possible to completely control pollution. The automobiles would not be there to breathe their noxious gases on the way to work in the morning. Garbage collection would be served by a chute-directly into a controlled furnace. Preposterous? Maybe. But don't forget, we've been heading in that direction ever since we crawled out of the caves.

Now, to the other extreme. Men have always dreamed of owning their very own Manor Houses on the big green Estates. To most of us, that has become an impossible dream. We simply can't afford the "Higher Cost Housing." So, we compromise; we settle for a small Manor House on a small green estate-probably the 8,500 square foot lot mentioned earlier. We have our estates, but they're "Miniature Estates." The "Miniature Estates" retain most of the attributes of the original dream, but on a much smaller scale. We've hung onto the sideyards, the setbacks, and the frontage on the approved street. But now a fly falls into the ointment. We're running out of bread to butter. The available, conveniently located space is decreasing; furthermore, the cost of constructing millions of the "Miniature Estates" has become prohibitive.

The answer is the next step in the housing evolutionary process (from case to Superbuilding); "Cluster Housing." With Clusters, many of our housing problems are alleviated. Density is increased, lessening the ecology and land cost problems. With a higher density located closer to the working center of the community, the pollution and transportation problems are decreased. By pooling the setbacks and sideyards we would have had with the "Minaiture Estates", we've increased open space and recreational area. And, most significantly, by bunching the living units more closely together, we've reduced one of the biggest problems: Cost of construction.

There are dirty words in Planning Sessions today, such as "Density." Another dirty term is "Urban Sprawl." (Each side in a housing debate will use it against the other; and the first to use it is the "good guy.") "Urban Sprawl" is another term definable only by degree. Semantically, any construction anywhere can be termed "Urban Sprawl." The only way we can completely eliminate "Urban Sprawl" is to completely eliminate new construction. Since we can't eliminate construction, our only hope is to contain it. The decision is the choice of better containment: "Miniature Estates" or "Clusters".

Whether the argument be density, urban sprawl, or ecology, somebody always gets blamed. First the builders are blamed, when they're

proposing construction. After the project is built, the Planners are blamed for allowing it in the first place. Is it the fault of the builders or of the planners that the people require housing?

The planning we insist on is doubtlessly the single most singnificant factor in the cost of housing construction today, like it or not. No one denies that planning is a necessity. However, let us not forget that planning must be served like wine - in moderation.

For our modern Cluster Developments, many jurisdictions have enacted a new ordinance, usually termed a "Planned Unit Development," or "PUD." The intention of the new rule is to allow flexibility of design within the development, and to discard many of the rules created through the years to regulate the "Miniature Estates." Generally, the project is approved by the Planning Commission, subject to the condition of acceptability by the various Staffed Departments. (Engineering, Building, etc.) Staff members then proceed to take the project apart, brick by painstaking brick. The concept of the single, overiding, original plan is disseminated in a sea of details. The rule book naturally applied is the book developed through the years which pertains to the old "Miniature Estates." The developer wallows in a maze of "necessary requirements." The end result is that the rules for the PUD actually become more restrictive than the rules for the "Miniature Estates." The construction cost rises. What can be done?

Interestingly, California now has in effect a "Factory Built Housing Law." Under the provisions of this new law, a structure (if prefabricated and approved by the State) may be erected in any community without regard for local building regulations. An enormous step in the right direction-insofar as the actual living-unit construction is concerned.

No regard has been given to the wealth of varying ordinances prevalent in California relative to Site Preparation. Conflicting ordinances exist in adjacent jurisdictions which considerably vary the construction costs of virtually identical sites. Each Community invariably considers the other to be wrong. (For example: in one City, concrete valley gutters are an absolute requirement at street intersections. In an adjacent City, such gutters are not allowed under any circumstances. It becomes evident that good engineering practice might dictate that such gutter might be a solution under certain circumstances; not under all circumstances, and never under no circumstance.)

It must be remembered that not all people drive Rolls-Royces; that a great many people drive Volkwagens. The Rolls-Royce may carry a perosn to his destination with more comfort, but the Volkswagen will get him there too, at a lower cost. We should not construct Volkswagen communities on Rolls-Royce sites.

Local opposition to a Cluster project can be very dehabilitating. It is not amaxing that residents in an area are generally in opposition. How many times has the statement been made: "The intention is to retain the single-family character of the neighborhood." Semantically, of course, the analogy is improper. Clusters are single-family dwellings. The opposition is really stating that they are opposed to something that is dissimilar to their existing "Miniature Estates", and that anything dissimilar could tend to depreciate existing property values.

Now is evidenced the real root of the opposition: fear of loss of value, or money. The fear of the unknown (a Cluster, in this case) is the greatest fear of all. The opposition voices his fear in a variety of ways. (It is not intended that the fear of depreciation should be treated scornfully, or negligently. The fear is real, and should be accommodated; it is pointed out here that the proponent of a development may better understand the opposition's motives.)

The possibility of depreciating values is not, however, normally voiced at Public Hearings. The following reasons for opposition usually are:

1. Increased traffic problems.
2. School overloading.
3. Possible flood hazards.
4. "It was just a field (or a hill) when I bought my house, and I understood it would always be that way."

Oftentimes, these reasons are legitimate, and can be accommodated. (Except, perhaps, for the last.) Many times, they are merely smokescreens. The fellow is worried about his property value.

Experience has demonstrated that education can allay many of the fears of the unknown. Preliminary, informal meetings with home-owner groups can serve to inform the existing residents that their fears may be invalid. It can be demonstrated that a Cluster will not depreciate existing property values; and that it may, in fact, enhance them. On occasion, previously hostile landowners have appeared at public hearings to speak in favor of a proposed project. Nothing warms the heart of a Planning Commissioner more than the endorsement of a neighbor.

Another approach to the reduction of the cost of housing construction must lie in the very mechanics of the design processes themselves. Several years ago, our Firm decided that it wouldn't do to attempt to travel to the Moon in a propeller-driven airplane. We realized that a new ship must be especially constructed which embraced our newest advances in technology; which would provide a better vehicle at a lesser cost. Our first call for help went to Concap Computing Systems of Oakland, for whom we have acted as Consultants for several years. It was agreed that the approach to Site Engineering must be completely revamped. The basic steps were outlined as follows:

1. A "Project Coordination Schedule" is prepared at the inception of the project.
2. A random survey traverse is placed on the ground, for use in obtaining all preliminary control, and stakeout.
3. Topography is obtained by aerial methods. Three-dimensional photography is quickly available for preliminary design.
4. The topography is plotted at a scale of 1"=40', then enlarged (Photographically) to a scale of 1"=20'.
5. The topography is field checked for accuracy, and for addition of features not possible to map from the air.
6. The boundary is reconciled. Traverse and boundary information is plotted by the computer, and stored for future use.
7. The Site Plan is prepared from the computer-plotted boundary, and presented to the appropriate public agencies for approval.
8. Subsequent to approval, the proposed improvements are computed plotted, and stored, at a scale of 1"=40'. This drawing is

overlaid onto the previously prepared appropriate scale topography, and the vertical configuration is determined.

9. Following all adjustments, the complete plan is reported at a 1"=40' scale. This drawing is later used for the staking plan.
10. The plan is plotted at a scale of 1"=20', preferably, onto a single, large sheet of paper. At this enlarged scale, the drawing is most useful to the Landscape Architect for his design work. The drawing is additionally overlaid by the draftsmen for preparation of the Final Subdivision Maps.
11. The plan is plotted (1"=20') onto the final engineering design sheets. A last run at a smaller scale (usually 1"=100') is plotted onto a cover sheet for use as modification into a "Key Map" to the various design sheets.
12. Earthwork quantities are computed from the combined 1"=20' scale topography and design. Cross-sections may be plotted by the computer, if desired.

The order of the various functions listed above is sometimes modified in order to accommodate unusual site or jurisdictional requirements. However, no steps can be entirely eliminated.

Derivation of the topography by aerial methods standardizes that function entirely. This method has proven to be extraordinarily accurate and complete in detail. A wider coverage is given than that usually provided by strictly field methods. Repeat trips to obtain additional topography are minimized.

Computer plotting of all sheets is without comparison. All drawings are identical, whatever the scale. The drawings represent exactly that which has been computed, and in exactly that configuration. The drawings are prepared with a very high degree of accuracy; the computer can plot far more precisely than man can scale.

A bonus is the combination of the various visual aids produced by the system (aerial photography, aerial topography, computer printouts and computer plotted maps). These items have been found to possess a great beneficial quality in presentations to an adjoiner, or to a Planning Commission. They seem to be greatly trusted insofar as extolling the exact truth. (In the case of aerial photography, this truth may, in fact, be distorted; however, to the more or less casual observer, a photograph is an absolute representation, and, therefore, convincing.)

We've come a long way with our streamlined processing, and with our use of the computer to accommodate the drudgery chores common to site design. We are combining more and more programs in order to enable us to give the developer the answers he wants in a matter of hours, instead of weeks or months. We feel that eventually, it should be possible to determine the feasibility of a project, and to provide a quantity list, cost estimate, and plot plan--all in a single day.

It isn't out of reach. We have most of the programs now. We're continually involved in a process of putting them together into an overall executive program. As our work proceeds, we feel that we are making our contribution toward furthering the cause of "Lesser Cost Housing."